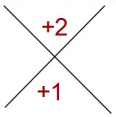
Given this equation: $x^2 + x + 2 = 0$

Can you solve this equation by taking square roots?

No, Square roots can't be used if there is a linear term

Can you solve this equation by factoring?



No, this doesn't factor. There are no integers that multiply to 2 and add to 1

Factoring works SOME of the time.

Using Square Roots works SOME of the time.

What works ALL of the time?

Ways to solve Quadratic Equations:

- Factoring ✓
- Square Roots ✓
- Quadratic Formula
- Graphing

Sec 5-8: The Quadratic Formula

Equation must be written in the following form:

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The results of using the Quadratic Fomula represent:

- solutions to the equation
- zeros of the function
- x-intercepts of the graph

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ Can be written as:

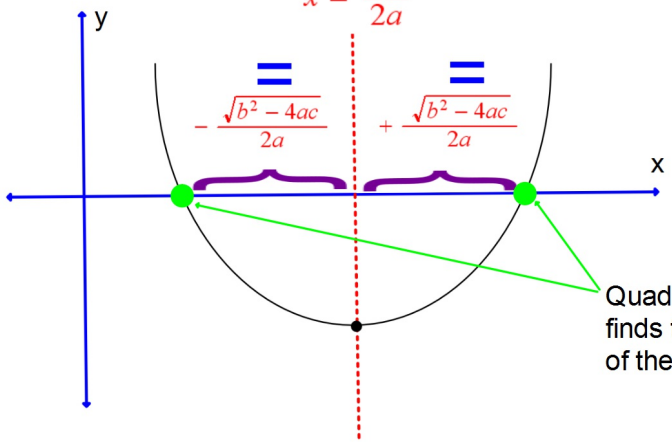
$$x = \frac{-b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

LOS

?

LOS

$$x = \frac{-b}{2a}$$



Quadratic Formula finds the x-intercepts of the graph.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ Can be written as:

$$x = \frac{-b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

LOS

Distance from LOS to both x-intercepts.

Find the solutions to this quadratic equation using the Quadratic Formula. Round to the nearest hundredth as necessary.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$6x^2 + 7x - 20 = 0$$

1st: Find $b^2 - 4ac$ = 529

2nd: Rewrite the Quadratic Formula Using this value in place of $b^2 - 4ac$ and replace 2a with its value

$$\frac{-7 \pm \sqrt{529}}{12}$$

3rd: Calculate the two answers

x = 1.33 , -2.5